# Naltrexone for the treatment of skin picking disorder in patients with Prader–Willi syndrome: A retrospective study

John Wayne Cassidy, MD [1,2,3], Geethanjali Ravindranathan, MS [1,2,3], Kristen Johnson, LVN [2,3]

*1 Nexus Hope Foundation, Houston, TX, 2 Nexus Specialty Hospital, Shenandoah, TX, 3 Nexus Health Systems Inc., Houston, TX*

## PRIMARY AIM

To evaluate the use of naltrexone as a therapeutic agent in treatment of skin picking in patients with Prader-Willi syndrome

## BACKGROUND

Prader-Willi Syndrome (PWS) is a complex neurodevelopmental disorder that affects ~1 in 20,000 births[1]. As the children mature, they may develop secondary behavioral disorders, one of it being dermatillomania, often referred to as skin picking[2]. Skin picking may cause systemic infections and significant skin discoloration leading to self-image issues and social isolation[3].

FDA-approved medications such as naltrexone, are used off label to potentially improve satiety or help ameliorate obesity and impulsive behavior in individuals with PWS[4, 5]. The highest level of evidence comes from two randomized controlled trials using naltrexone with psychiatric endpoints evaluated by psychiatrists[6]. However, there have not been consistent positive responses to previous treatment options.

**RATIONALE:** We chose to use naltrexone for its successful therapeutic effects in self-injurious behaviors. By extension, it was thought this agent might be useful to treat skin picking because other commonly used medications were only partially effective. In our patient population, it was difficult to rely on self-reporting given that they had intellectual disability disorders.

## STUDY DESIGN

Nexus Children's Hospital is a pediatric specialty medical hospital with a dedicated program that specifically treats patients with PWS. This was a single-center, uncontrolled retrospective study.

**DATA COLLECTION:** Electronic medical records at Nexus Children's Hospital (Houston, Texas, USA) were reviewed manually to identify all patients diagnosed with skin picking in PWS that were treated with naltrexone between 01 January 2014 and 01 January 2021. Subjects were identified using the following search terms from medical records on two separate encounters: (PWS) AND ([picking] OR [naltrexone]).

**INCLUSION/EXCLUSION CRITERIA:** We excluded patients with a history of allergies associated with naltrexone or naltrexone like compounds and patients who had skin picking in the past (not current). We included all other patients referred specifically to the PWS program who had active skin picking presented during admission.

**DOSING:** All the patients were administered naltrexone 50 to 400 mg per day. The doses were titrated until the condition was in remission. Patients were observed hourly during waking hours for potential side effects.

**DATA ANALYSIS:** De-identified data were collected and managed by Research Electronic Data Capture. The following data were collected: date of birth, age at diagnosis, diagnosis, treatment and medications, etiology, skin picking details, and medical history.

**OUTCOME MEASURE:** A patient was deemed to have a positive treatment response if there was an objective improvement documented in the physical examination and assessment sections of the clinical note.

## RESULTS

100% of the patients treated with naltrexone exhibited resolution of skin picking symptoms

| Result | Values (n, %) | Minimum, Maximum |
|---|---|---|
| Age (mean, SD), y | 16.2, 4.6 | Min: 9.96, Max: 30.77 |
| Sex (female) | 17/39, 43.6 % | |
| Sex (male) | 22/39, 56.4% | |
| Mean duration of therapy in all patients, d | 19.5 (SD = 11.2) | Min: 3, Max: 35 |
| Mean dosing of Naltrexone, mg | 207.05 | Min: 50, Max: 400 |
| Positive response rate in patients | 39/39, 100% | |

*Table 1. Overview of Results*

## CONCLUSIONS

These preliminary, but encouraging findings strongly suggest that the use of 50- 400 mg/day naltrexone likely leads to resolution of skin picking in patients with PWS.

**LIMITATIONS:** As this is an uncontrolled study, a confirmatory causal conclusion cannot be established. The success of the result of this study warrants the necessity to perform prospective cohort studies or double-blinded, randomized, and placebo-controlled trials to further validate the efficacy and generalizability.

## REFERENCES

1.Chung MS, Langouet M, Chamberlain SJ, Carmichael GG. Prader-Willi syndrome: reflections on seminal studies and future therapies. Open Biol. 2020;10:200195. doi: 10.1098/rsob.200195.
2.Bull LE, Oliver C, Woodcock KA. Skin Picking in People with Prader-Willi Syndrome: Phenomenology and Management. J Autism Dev Disord. 2021;51:286-297. doi: 10.1007/s10803-020-04504-5.
3.Grant JE, Odlaug BL, Chamberlain SR, Keuthen NJ, Lochner C, Stein DJ. Skin picking disorder. Am J Psychiatry. 2012;169:1143-9. doi: 10.1176/appi.ajp.2012.12040508.
4.Puri MR, Sahl R, Ogden S, Malik S. Prader-Willi Syndrome, Management of Impulsivity, and Hyperphagia in an Adolescent. J Child Adolesc Psychopharmacol. 2016;26:403-4. doi: 10.1089/cap.2015.0240.
5.Pilitsi E, Farr OM, Polyzos SA, Perakakis N, Nolen-Doerr E, Papathanasiou AE, Mantzoros CS. Pharmacotherapy of obesity: Available medications and drugs under investigation. Metabolism. 2019;92:170-192. doi: 10.1016/j.metabol.2018.10.010.
6.Grant JE, Odlaug BL, Schreiber LR, Kim SW. The opiate antagonist, naltrexone, in the treatment of trichotillomania: results of a double-blind, placebo-controlled study. J Clin Psychopharmacol. 2014;34:134-8. doi: 10.1097/JCP.0000000000000037.